Name: _____   Date: _____
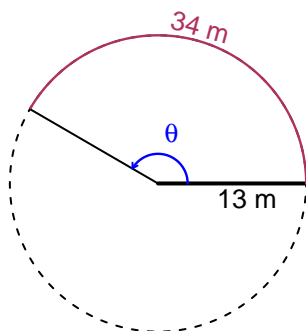
Trig Final (Practice v33)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.
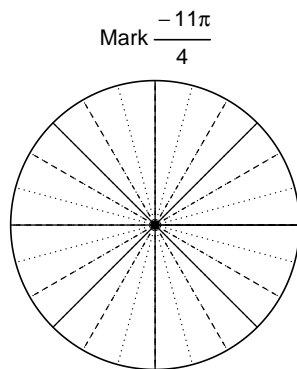
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 34 meters. The radius is 13 meters. What is the angle measure in radians?
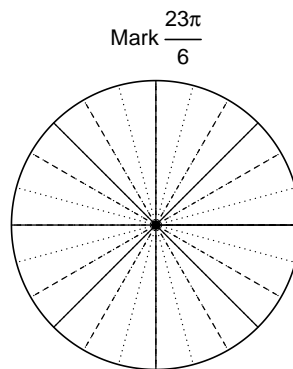

Question 2

Consider angles $\frac{-11\pi}{4}$ and $\frac{23\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-11\pi}{4}\right)$ and $\sin\left(\frac{23\pi}{6}\right)$ by using a unit circle (provided separately).

Mark $\dfrac{-11\pi}{4}$

Find cos(−11π/4)

Mark $\dfrac{23\pi}{6}$

Find sin(23π/6)

1

Question 3

If $\tan(\theta) = \frac{40}{9}$, and θ is in quadrant III, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -6.18$ meters, an amplitude of 8.79 meters, and a frequency of 7.53 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).